



#3

SEQUENCE LISTING

<110> GUTIERREZ-ARMENTA, CRISANTO
SANZ-BURGOS, ANDRES P.
XIE, QI
LOPEZ, PAULA S.

<120> PLANT RETINOBLASTOMA-ASSOCIATED PROTEINS

<130> 4148-6

<140> 10/025,676

<141> 2001-12-26

<150> PCT/ES96/00130

<151> 1996-06-13

<150> PCT/EP97/03070

<151> 1997-06-12

<160> 19

<170> PatentIn Ver. 2.1

<210> 1

<211> 683

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: plant RB protein

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Leu	Gly	His	Ser	Lys	Cys	Ala	Phe	Glu	Thr	Leu	Ala	Ser	Pro	Thr	Lys
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Thr	Ile	Lys	Asn	Met	Leu	Thr	Val	Pro	Ser	Ser	Pro	Leu	Ser	Pro	Ala
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Thr	Gly	Gly	Ser	Val	Lys	Ile	Val	Gln	Met	Thr	Pro	Val	Thr	Ser	Ala
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Lys	Pro	Ser	Lys	Leu	Gln	Gln	Phe	Leu	Ser	Ser	Cys	Asp	Arg	Asp	
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Leu Thr Asn Ala Val Thr Glu Arg Val Ser Ile Val Leu Glu Ala Ile
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Phe Pro Thr Lys Ser Ser Ala Asn Arg Gly Val Ser Leu Gly Leu Asn
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Cys Ala Asn Ala Phe Asp Ile Pro Trp Ala Glu Ala Arg Lys Val Glu
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Ala Ser Lys Leu Tyr Tyr Arg Val Leu Glu Ala Ile Cys Arg Ala Glu
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Leu Gln Asn Ser Asn Val Asn Asn Leu Thr Pro Leu Leu Ser Asn Glu
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Arg Phe His Arg Cys Leu Ile Ala Cys Ser Ala Asp Leu Val Leu Ala
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His Glu Glu Thr Leu Pro Arg Glu Leu Lys Arg His Leu Asn Ser Leu
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Glu Glu Gln Leu Leu Glu Ser Met Ala Trp Glu Lys Gly Ser Ser Leu
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Tyr Asn Ser Leu Ile Val Ala Arg Pro Ser Val Ala Ser Glu Ile Asn
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Arg Leu Gly Leu Leu Ala Glu Pro Met Pro Ser Leu Asp Asp Leu Val
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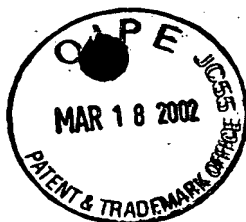
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Phe Ser Lys Ile Leu Lys Leu Ala Ala Ile Arg Ile Arg Asn Leu Cys
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Glu Arg Val Gln Cys Val Glu Gln Thr Glu Arg Val Tyr Asn Val Phe
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<212> DNA

<213> Zea mays

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Val Ser Leu Gly Leu Asn Cys Ala Asn Ala Phe Asp Ile Pro Trp Ala
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Glu Ala Arg Lys Val Glu Ala Ser Lys Leu Tyr Tyr Arg Val Leu Glu
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Ala Ile Cys Arg Ala Glu Leu Gln Asn Ser Asn Val Asn Asn Leu Thr
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115 120 125
Ala Asp Leu Val Leu Ala Thr His Lys Thr Val Ile Met Met Phe Pro
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Ala Val Leu Glu Ser Thr Gly Leu Thr Ala Phe Asp Leu Ser Lys Ile
145 150 155 160
Ile Glu Asn Phe Val Arg His Glu Glu Thr Leu Pro Arg Glu Leu Lys
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Glu Lys Gly Ser Ser Leu Tyr
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His Phe Gly His Val Phe Lys Glu Lys Phe Ala Ser Ser Val Gly Gln
50 55 60
Ala Cys Ala Glu Ile Gly Tyr Gln Arg Tyr Lys Leu Gly Val Cys Leu
65 70 75 80
Tyr Tyr Arg Val Met Glu Ala Ile Leu Lys Thr Glu Glu Glu Arg Leu
85 90 95
Ser Val His Asn Phe Ser Lys Leu Leu Asn Asn Asp Ile Phe His Ile
100 105 110

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- Cys Leu Leu Ala Cys Ala Val Glu Val Val Val Ala Ser Tyr Ala Arg
115 120 125
Asn Ala Ser Gln Ala Tyr Cys Ser Ser Gly Thr Asn Leu Ser Phe Pro
130 135 140
Trp Ile Leu Arg Ala Phe Glu Leu Lys Ala Phe Asp Phe Tyr Lys Val
145 150 155 160
Ile Glu Cys Phe Ile Lys Ala Glu Pro Ser Leu Thr Ser Asn Met Ile
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<213> Gallus sp.

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35 40 45
Cys Leu Gly His Ile Phe Lys Lys Lys Phe Ala Glu Ala Val Gly Gln
50 55 60
Gly Cys Ala Glu Ile Gly Ser Gln Arg Tyr Gln Leu Gly Val Arg Leu
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Tyr Tyr Arg Val Met Glu Ser Met Leu Lys Ser Glu Glu Glu Arg Leu
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Ser Val His Asn Phe Ser Lys Leu Leu Asn Asp Asn Ile Phe His Thr
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Ser Leu Leu Ala Cys Ala Leu Glu Ile Val Met Ala Thr Tyr Gly Arg
115 120 125
Thr Ala Ser Gln Ser Asp Gly Thr Ser Ala Glu Thr Asp Leu Ser Phe
130 135 140
Pro Trp Ile Leu Asn Val Phe Asp Leu Lys Ala Phe Asp Phe Tyr Lys
145 150 155 160
Val Ile Glu Ser Phe Ile Lys Val Glu Pro Ser Leu Thr Arg Asp Met

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165

170

175

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Trp Gln Ser Asp Ser Pro Leu Phe
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<213> Mus sp.

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Asn Asn Cys Thr Val Asn Pro Lys Glu Asn Ile Leu Lys Arg Val Lys
35 40 45

Asp Val Gly His Ile Phe Lys Glu Lys Phe Ala Asn Ala Val Gly Gln
50 55 60

Gly Cys Val Asp Ile Gly Val Gln Arg Tyr Lys Leu Gly Val Arg Leu
65 70 75 80

Tyr Tyr Arg Val Met Glu Ser Met Leu Lys Ser Glu Glu Glu Arg Leu
85 90 95

Ser Ile Gln Asn Phe Ser Lys Leu Leu Asn Asp Asn Ile Phe His Met
100 105 110

Ser Leu Leu Ala Cys Ala Leu Glu Val Val Met Ala Thr Tyr Ser Arg
115 120 125

Ser Thr Leu Gln His Leu Asp Ser Gly Thr Asp Leu Ser Phe Pro Trp
130 135 140

Ile Leu Asn Val Leu Asn Leu Lys Ala Phe Asp Phe Tyr Lys Val Ile
145 150 155 160

Glu Ser Phe Ile Lys Val Glu Ala Asn Leu Thr Arg Glu Met Ile Lys
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Ser Asp Ser Pro Leu Phe
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<212> PRT
<213> Homo sapiens

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Asp	Ile	Gly	Tyr	Ile	Phe	Lys	Glu	Lys	Phe	Ala	Lys	Ala	Val	Gly	Gln
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Ser	Ile	Gln	Asn	Phe	Ser	Lys	Leu	Leu	Asn	Asp	Asn	Ile	Phe	His	Met
			100					105					110		
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35

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Gly Ile Gly Glu Thr Phe Cys Gln His Tyr Thr Gln Ser Thr Asp Glu
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Gln Pro Gly Ser His Ile Asp Phe Ala Val Asn Arg Leu Lys Leu Ala
65 70 75 80

Glu Ile Leu Tyr Tyr Lys Ile Leu Glu Thr Val Met Val Gln Glu Thr
85 90 95

Arg Arg Leu His Gly Met Asp Met Ser Val Leu Leu Glu Gln Asp Ile
100 105 110

Phe His Arg Ser Leu Met Ala Cys Cys Leu Glu Ile Val Leu Phe Ala
115 120 125

Tyr Ser Ser Pro Arg Thr Phe Pro Trp Ile Ile Glu Val Leu Asn Leu
130 135 140

Gln Pro Phe Tyr Phe Tyr Lys Val Ile Glu Val Val Ile Arg Ser Glu
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Glu Gly Leu Ser Arg Asp Met Val Lys His Leu Asn Ser Ile Glu Glu
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<213> Homo sapiens

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35 40 45

Glu Met Gln Ala Ile Ala Asn Arg Leu Lys Glu Met Phe Glu Ile Tyr
50 55 60

Ser Gln His Phe Gln Pro Asp Glu Asp Phe Ser Asn Cys Ala Lys Glu
65 70 75 80

Ile Ala Ser Lys His Phe Arg Phe Ala Glu Met Leu Tyr Tyr Arg Val
85 90 95

Leu Glu Ser Val Ile Glu Gln Glu Gln Lys Arg Leu Gly Asp Met Asp
100 105 110

BEST AVAILABLE COPY



Leu Ser Gly Ile Leu Glu Gln Asp Ala Phe His Arg Ser Leu Leu Ala
115 120 125

Cys Cys Leu Glu Val Val Thr Phe Ser Tyr Lys Pro Pro Gly Asn Phe
130 135 140

Pro Phe Ile Thr Glu Ile Phe Asp Val Pro Leu Tyr His Phe Tyr Lys
145 150 155 160

Val Ile Glu Val Phe Ile Arg Ala Glu Asp Gly Leu Cys Arg Glu Val
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Trp Lys Pro Glu Ser Pro Leu Trp
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<210> 13

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<212> PRT

<213> Zea mays

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Cys Val Glu Gln Thr Glu Arg Val Tyr Asn Val Phe Lys Gln Ile Leu
35 40 45

Glu Gln Gln Thr Thr Leu Phe Phe Asn Arg His Ile Asp Gln Leu Ile
50 55 60

Leu Cys Cys Leu Tyr Gly Val Ala Lys Val Cys Gln Leu Glu Leu Thr
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Phe Arg Glu Ile Leu Asn Asn Tyr Lys Arg Glu Ala Gln Cys Lys Pro
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Glu Val Phe Ser Ser Ile Tyr Ile Gly Ser Thr Asn Arg Asn Gly Val
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115 120 125

Val Pro Ala Ala Lys Pro Phe Leu Val
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<212> PRT

<213> Xenopus sp.

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Gln Gln Glu Tyr Glu Leu Met Arg Asp Arg His Leu Asp Gln Ile Met
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Phe Lys Thr Ile Val Thr Ala Tyr Lys Gly Leu Thr Asn Thr Asn Gln
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<210> 15

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<212> PRT

<213> Gallus sp.

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Asn Gln Glu Thr Phe Lys Arg Val Leu Ile Arg Glu Glu Gln Tyr Asp
100 105 110

BEST AVAILABLE COPY



Ser Ile Ile Val Phe Tyr Asn Leu Val Phe Met Gln Lys Leu Lys Thr
115 120 125

Asn Ile Leu
130

<210> 16
<211> 131
<212> PRT
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<400> 16
Gln Lys Pro Leu Lys Ser Thr Ser Leu Ala Leu Phe Tyr Lys Lys Val
1 5 10 15

Tyr Arg Leu Ala Tyr Leu Arg Leu Asn Thr Leu Cys Ala Arg Leu Leu
20 25 30

Ser Asp His Pro Glu Leu Glu His Ile Ile Trp Thr Leu Phe Gln His
35 40 45

Thr Leu Gln Asn Glu Tyr Glu Leu Met Arg Asp Arg His Leu Asp Gln
50 55 60

Ile Met Met Cys Ser Met Tyr Gly Ile Cys Lys Val Lys Asn Ile Asp
65 70 75 80

Leu Lys Phe Lys Ile Ile Val Thr Ala Tyr Lys Asp Leu Pro His Ala
85 90 95

Ala Gln Glu Thr Phe Lys Arg Val Leu Ile Arg Glu Glu Glu Phe Asp
100 105 110

Ser Ile Ile Val Phe Tyr Asn Ser Val Phe Met Gln Arg Leu Lys Thr
115 120 125

Asn Ile Leu
130

<210> 17
<211> 130
<212> PRT
<213> Homo sapiens

<400> 17
Gln Lys Pro Leu Lys Ser Thr Ser Leu Ser Leu Phe Tyr Lys Lys Val
1 5 10 15

Tyr Arg Leu Ala Tyr Leu Arg Asn Thr Leu Cys Glu Arg Leu Leu Ser
20 25 30

Glu His Pro Glu Leu Glu His Ile Ile Trp Thr Leu Phe Gln His Thr
35 40 45

Leu Gln Asn Glu Tyr Glu Leu Met Arg Asp Ala His Leu Asp Gln Ile

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50

55

60

Met Met Cys Ser Met Tyr Gly Ile Cys Lys Val Lys Asn Ile Asp Leu
65 70 75 80

Lys Phe Lys Ile Ile Val Thr Ala Tyr Lys Asp Leu Pro His Ala Val
85 90 95

Gln Glu Thr Phe Lys Arg Val Leu Ile Lys Glu Glu Glu Tyr Asp Ser
100 105 110

Ile Ile Val Phe Tyr Asn Ser Val Phe Met Gln Arg Leu Lys Thr Asn
115 120 125

Ile Leu
130

<210> 18

<211> 166

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<213> Homo sapiens

<400> 18

Asn Arg Pro Lys Arg Thr Gly Ser Leu Ala Leu Phe Tyr Arg Lys Val
1 5 10 15

Tyr His Leu Ala Ser Val Arg Leu Arg Asp Leu Cys Leu Lys Leu Asp
20 25 30

Val Ser Asn Glu Leu Arg Arg Lys Ile Trp Thr Cys Phe Glu Phe Thr
35 40 45

Leu Val His Cys Pro Asp Leu Met Lys Asp Arg His Leu Asp Gln Leu
50 55 60

Leu Leu Cys Ala Phe Tyr Ile Met Ala Lys Val Thr Lys Glu Glu Arg
65 70 75 80

Thr Phe Gln Glu Ile Met Lys Ser Tyr Arg Asn Gln Pro Gln Ala Asn
85 90 95

Ser His Val Tyr Arg Ser Val Leu Leu Lys Ser Ile Pro Arg Glu Val
100 105 110

Val Ala Tyr Asn Lys Asn Ile Asn Asp Asp Phe Glu Met Ile Asp Cys
115 120 125

Asp Leu Glu Asp Ala Thr Lys Thr Pro Asp Cys Ser Ser Gly Pro Val
130 135 140

Lys Glu Glu Arg Ser Asp Leu Ile Lys Phe Tyr Asn Thr Ile Tyr Gly
145 150 155 160

Arg Val Ser Phe Ala Leu
165

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<210> 19
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<400> 19

Asn Arg Pro Arg Lys Thr Ser Ser Leu Ser Leu Phe Phe Arg Lys Val
1 5 10 15

Tyr His Leu Ala Ala Val Arg Leu Arg Asp Leu Cys Ala Lys Leu Asp
20 25 30

Ile Ser Asp Glu Leu Arg Lys Lys Ile Trp Thr Cys Phe Glu Phe Ser
35 40 45

Ile Ile Gln Cys Pro Glu Leu Met Met Asp Arg His Leu Asp Gln Leu
50 55 60

Leu Met Cys Ala Ile Tyr Val Met Ala Lys Val Thr Lys Glu Asp Lys
65 70 75 80

Ser Phe Gln Asn Ile Met Arg Cys Tyr Arg Thr Gln Pro Gln Ala Arg
85 90 95

Ser Gln Val Tyr Arg Ser Val Leu Ile Lys Gly Lys Arg Lys Arg Arg
100 105 110

Asn Ser Gly Ser Ser Asp Ser Arg Ser His Gln Asn Ser Pro Thr Glu
115 120 125

Leu Asn Lys Asp Arg Thr Ser Arg Asp Ser Ser Pro Val Met Arg Ser
130 135 140

Ser Ser Thr Leu Pro Val Pro Gln Pro Ser Ser Ala Ala Pro Thr Pro
145 150 155 160

Thr Arg Leu Thr Gly Ala Asn Ser Asp Met Glu Glu Glu Glu Arg Gly
165 170 175

Asp Leu Ile Gln Phe Tyr Asn Asn Ile Tyr Ile Lys Gln Ile Lys Thr
180 185 190

Phe Ala Met
195

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